Space Weather Forecast

Issued on Sunday, 18 February 2024 at 01:23 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Decreasing flare risk but with a persistent chance of isolated Moderate flares. Solar radiation storm risk decreasing but remaining above background.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low activity with the peak flare only common class. There are currently seven sunspots on the disc, however the main flare risk remains from the large region now over the southwest limb, despite the spot no longer being visible. This risk will continue to recede as this moves further onto the far-side in the coming hours and days. The larger, multipart region in the northwest is the most complex and developmental spot currently on the visible disc, with ongoing growth developing to the north of the leader spot. The other spots on the disc remain smaller and simpler, although some small growth was observed.
No significant Earth-directed CMEs (coronal Mass Ejections) were observed in this period, with a faint eruption from the southwest disc at around 17/0219 UTC assessed as both slow and likely passing south of Earth.

Solar Wind / Geomagnetic Activity: Solar winds have been at generally background levels, at around 350 km/s. Interplanetary Magnetic Field (IMF) was weak, with the important north-south component generally weakly negative (southward). Geomagnetic activity was Quiet (Kp 0 to 2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was elevated above background levels, but with a declining trend and was below the S1/Minor Radiation storm threshold throughout.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate to Low activity is forecast, with an ongoing but decreasing chance of isolated Moderate flares. There remains a slight chance of a Strong flare on day 1 (18 Feb), primarily from the large region just over the southwest limb.

Solar Wind / Geomagnetic Activity: Recent CMEs are expected to either miss or only have very minimal impact on Earth, with the most likely for an Earth-directed component being the eruption from the north-disc on 16 Feb, passing near Earth on day 2-3 (late 19 Feb or early 20 Feb). No other significant solar wind enhancements feature in the period with mainly background winds expected. Geomagnetic activity is expected to be mostly Quiet through this period, perhaps becoming Unsettled with Active intervals with any CME arrival on days 2-3 (19-20 Feb).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to continue declining towards background levels. However, any further eruption from either the far-sided region or those currently on the western disk could bring further enhancements, with a slight chance of reaching the S1 Minor Solar Radiation Storm level.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	40	40	40
Very Active	R3 to R5 X	No	10	5	1	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.